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Fine-needle Aspiration

In fine-needle aspiration a thin, hollow needle is used to take a sample of cells from an organ or lump under the skin. The cells are then analysed under a microscope.

Note: the information below is a general guide only. The arrangements and the way tests are performed, may vary between different hospitals. Always follow the instructions given by your doctor or local hospital.

What is fine-needle aspiration?

Fine-needle aspiration involves using a thin, hollow needle to remove samples of tissue or fluid from an organ of the body or a lump found under the skin. Once the samples of cells have been removed, they are sent to the laboratory for further testing. Fine-needle aspiration is usually done to identify the type of cells inside a lump or to see how well treatment of an existing lump is working. It is commonly used to investigate **lumps found in the breast** or a **gland found in your neck (the thyroid)**. However, it can also be used in other parts of the body. It is a very useful way of detecting cancer.

How does fine-needle aspiration work?

A very thin, hollow needle is gently inserted through the skin into the lump or organ below. Often there is a syringe attached to the needle. The doctor can use the syringe to help 'suck' some of the cells into the needle by gently pulling on the plunger. Usually, the test can be done without the need to make a cut in the skin. This helps to minimise any discomfort for the person having the test as well as the risk of infection or other complications.

If the lump being tested is very small it might be necessary to use a scanning machine to help guide the needle to the right place. This may be done by **an ultrasound scan**, **a CT scan** or an X-ray of the breast (a mammogram).

What happens during a fine-needle aspiration?

The doctor will clean the skin where the needle is to be inserted. In some cases you will also be given a local anaesthetic to numb the area. This may not be necessary if the lump is very close to the surface of your skin.

The doctor will hold the lump steady with one hand and insert a thin needle (which may be attached to a syringe) into the lump. He or she may move the needle in and out of the area to make sure of getting enough tissue or fluid. If there is a syringe attached, he or she will gently pull back on the plunger to help remove the tissue or fluid. The process takes a few seconds to a few minutes. The needle will then gently be removed and your doctor may apply some pressure to help stop any bleeding.

If the doctor cannot easily feel the lump, you may have an imaging test, such as a CT scan, ultrasound scan, or mammogram to see where to put the needle. In this case, a doctor known as a radiologist may do the aspiration. If the lump is a fluid-filled sac (a cyst), the fluid is removed and the lump usually goes away.

After the test is over, the cells taken from the needle are sent to the laboratory. It may take a few days to get the results of the test back, depending on what part of your body has been tested.

What should I do to prepare for a fine-needle aspiration?

This depends on what part of your body is being tested - your local hospital should give you information on what is required. Usually, there is very little preparation necessary. However, if you take a blood-thinning medicine (an anticoagulant) such as warfarin you may be asked to stop taking this for a few days.

Are there any side-effects or complications from a fine-needle aspiration?

Most fine-needle aspirations are carried out without any problems. Commonly, you may feel a little sore for a couple of days after the test. You may develop a bruise at the site where the needle was inserted. Complications are uncommon but can include:

- Bleeding.
- Infection.
- Other complications specific to the site of needle insertion.

Further reading & references

- Karadeniz Cakmak G, Emre AU, Tascilar O, et al; Diagnostic adequacy of surgeon-performed ultrasound-guided fine needle aspiration biopsy of thyroid nodules. J Surg Oncol. 2012 Jul 5. doi: 10.1002/jso.23212.
- Yu YH, Wei W, Liu JL; Diagnostic value of fine-needle aspiration biopsy for breast mass: a systematic review and meta-analysis. BMC Cancer. 2012 Jan 25;12:41.

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